

REMARKS

The Final Office Action mailed October 10, 2003, has been received and reviewed. Claims 1-33 and 37-58 are currently pending in the application. Claims 1-24 and 37-58 have been withdrawn from consideration as being drawn to non-elected invention(s) and have been canceled without prejudice to the filing of one or more divisional applications including the subject matter of these claims. Claims 25-27 stand rejected and claims 28-33 have been objected to.

Applicant proposes to amend claims 25 and 29-33, cancel claim 28, and respectfully requests reconsideration of the application as proposed to be amended herein.

Objections to Claims 28-33

The Office Action Summary objects to claims 28-33. However, the body of the Office Action does not set forth a basis for the objection to these claims. Based on indications in the Office Action of April 23, 2003, (see p. 3) and the fact that claims 28-33 are not rejected under any references in the outstanding Office Action, Applicant presumes that claims 28-33 include allowable subject matter.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent Nos. 6,206,988 to Bazaki, in View of U.S. Patent No. 5,690,868 to Strauss, U.S. Patent No. 5,467,714 to Lund et al., U.S. Patent No. 6,214,137 to Lee et al., and U.S. Patent No. 4,211,169 to Brothers

Claims 25-27 stand rejected under 35 U.S.C. § 103(a) ("Section 103") as being unpatentable over U.S. Patent No. 6,206,988 to Bazaki ("Bazaki"), in view of U.S. Patent No. 5,690,868 to Strauss ("Strauss"), U.S. Patent No. 5,467,714 to Lund *et al.* ("Lund '714"), U.S. Patent No. 6,214,137 to Lee *et al.* ("Lee"), and U.S. Patent No. 4,211,169 to Brothers ("Brothers").

Applicant has amended claim 25 to recite the subject matter of claim 28, which was indicated as allowable in the Office Action of April 23, 2003, p. 3. Claim 28 has been canceled.

In light of this amendment, Applicant respectfully submits that claim 25 is allowable and requests that the obviousness rejection be withdrawn.

Claims 26 and 27 are allowable, *inter alia*, as depending on an allowable base claim. Claim 26 is further allowable because the cited references do not teach or suggest that the CL-20 comprises 15 weight percent to 20 weight percent of the total weight of the explosive composition and the BDNPA/F comprises 15 weight percent to 19 weight percent of the total weight of the explosive composition. Claim 27 is further allowable because the cited references do not teach or suggest that a weight ratio of the RDX and the polyisobutylene to the CL-20 and the BDNPA/F is in a range of 1:1 to 3:1.

Applicant has added new claim 59, which recites the subject matter that was previously recited in claim 25. As such, in this response, Applicant treats the Examiner's rejection of claim 25 as applying to new claim 59. Applicant respectfully traverses the obviousness rejection of claim 59, as hereinafter set forth.

Applicant first notes that the Examiner relies on Lund '714 to reject claim 59. However, after reviewing the PTO-892 and PTO-1449 Forms filed in this case, Applicant respectfully submits that Lund '714 has not been cited in the pending case. The only Lund reference cited to date is United States Patent No. 5,529,649, to Lund *et al.* Therefore, Applicant respectfully requests that Lund '714 be made of reference in this case. For purposes of this response, Applicant assumes that the Examiner's rejections are made under Lund '714 and not under United States Patent No. 5,529,649, to Lund *et al.*

M.P.E.P. 706.02(j) sets forth the standard for a Section 103 rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

The obviousness rejection of claim 59 is improper because the cited references do not teach or suggest all the limitations of claim 59 and do not provide a motivation to combine to produce the claimed invention.

Bazaki discloses an explosive composition having a hexanitrohexaazaisowurtzitane composition that includes hexanitrohexaazaisowurtzitane, polynitropolyacetylhexaazaisowurtzitanes, and one or more oxaisowurtzitane compounds. The hexanitrohexaazaisowurtzitane composition is present from 55-95% by weight. If the hexanitrohexaazaisowurtzitane composition is present at less than 55%, a uniform dispersion of the explosive composition is not obtained.

Strauss discloses a multi-layer propellant having a layer of a slow burning propellant and a layer of a fast burning propellant. Formulations of the slow burning and the fast burning propellants are formed separately into layers and are bonded together into a desired shape. Binders in each of the formulations allow the layers to bond together. The slow burning propellant includes RDX and the fast burning propellant includes 2,4,6,8,10,12-hexanitro-2,4,6,8,10,12-hexaazatetracyclo[5.5.0.0^{5,9}.0^{3,11}]-dodecane (CL-20).

Lund '714 discloses an explosive composition that includes an acceptor phase and an explosive phase. The acceptor phase contains a halogenated polymer and a reactive metal and the explosive phase includes a nonmetallized explosive. A portion of the explosive phase surrounds the acceptor phase.

Lee discloses a CL-20 composition including 85-95% CL-20 and 5-15% of a binder system having at least one non-energetic binder and at least one energetic plasticizer.

Brothers discloses an explosive flechette launch system that is filled with Composition C-4. The Examiner states that Brothers "is cited only to teach the precise formulation of the notoriously well known C-4 explosive." Office Action of October 10, 2003, p. 2.

The Examiner states that the claimed invention is "obvious, absent unexpected results" because "variation of notoriously well known ingredients and amounts would be obvious to one of ordinary skill in the art." *Id.* at p. 2-3. However, Applicant respectfully submits that the claimed invention provides unexpected results and that the cited references do not teach or suggest all the limitations of claim 59. None of the compositions disclosed in the cited

references teach or suggest an explosive composition that includes the percentages of each of the ingredients recited in claim 59. Specifically, the cited references do not teach or suggest an explosive composition that includes about 45 weight percent to about 69 weight percent RDX, about 0.5 weight percent to about 2.25 weight percent polyisobutylene, about 15 weight percent to about 30 weight percent CL-20, and about 15 weight percent to about 25 weight percent BDNPA/F, as recited in claim 59.

While Strauss discloses a propellant composition having RDX, CL-20, and BDNPA/F, Strauss is silent regarding the amounts of each of these components in the propellant composition. Therefore, Strauss does not teach or suggest that each of the ingredients is present at the percentages recited in claim 59. Similarly, in Bazaki, there is no teaching or suggestion that the RDX and CL-20 are present at the recited percentage ranges. In addition, Bazaki does not disclose using BDNPA/F in its composition and, therefore, does not teach or suggest that the BDNPA/F is present from about 15 weight percent to about 25 weight percent. While Lee discloses a composition including CL-20 and BDNPA/F, there is no teaching or suggestion that the composition includes RDX. Therefore, Lee does not teach or suggest that the RDX is present from about 45 weight percent to about 69 weight percent. In addition, Lee does not teach or suggest that the CL-20 is present from about 15 weight percent to about 30 weight percent or the BDNPA/F is present from about 15 weight percent to about 25 weight percent.

Lund '714 also does not disclose the claimed percentages of the ingredients in the explosive composition of the present invention. Lund '714 discloses that its explosive composition includes from 70-92% CL-20, which is significantly higher than the percentage of CL-20 recited in claim 59. Lund '714 also discloses that its explosive composition includes from 70-92% RDX, which is higher than the percentage of RDX recited in claim 59. Brothers also does not disclose the recited percentages of the ingredients in the explosive composition of the present invention because, as acknowledged by the Examiner, this reference "is cited only to teach the precise formulation of the notoriously well known C-4 explosive." *Id.* at p. 2.

The Examiner states that "where the ingredients are well known and combined for their known properties, the combination is obvious absent unexpected results." *Id.* at p. 2-3. The Examiner further states that "[t]he respective properties of CL-20 and RDX (C-4) compositions

are well known and shown generally in the references, such as by the taught burning speed, density, etc.” *Id.* at p. 3. However, as disclosed in the specification, the explosive composition of the present invention has a low viscosity and good shapeability at room temperature. These improved properties are provided without adversely affecting the energetic performance of the explosive composition. In contrast, C-4 has a low deformability at room temperature and poor low temperature properties. Since the explosive composition of the present invention is more shapeable than C-4, it is easily loaded or injected into a case of an explosive device without needing to be heated or cut into small dimensions. As such, the claimed invention provides unexpected results.

The cited references also do not provide a motivation to combine to produce the claimed invention. The Examiner states that “[t]he motivation to combine is found in both references, for the expected improvement in properties from substituting some CL-20 for the prior explosive ingredient either mixed together or combined in layers, and in the case law that reflects sound engineering and common sense as to averaging properties.” *Id.* at 3. However, Bazaki teaches away from an explosive composition that includes from “about 15 weight percent to about 30 weight percent” of CL-20 because it discloses that if the hexanitrohexaazaisowurtzitane composition is present at less than 55% of its explosive composition, it is not possible to obtain a uniform dispersion of the explosive composition. In addition, nothing in the cited references provides any motivation to produce an explosive composition having a lower viscosity and that is more shapeable than C-4. Therefore, one of ordinary skill in the art would not be motivated to combine the cited references to produce the claimed invention.

Since the cited references do not teach or suggest all the limitations of claim 59 or provide a motivation to combine, Applicant respectfully submits that the obviousness rejection is improper and should be withdrawn.

ENTRY OF AMENDMENTS

The proposed amendments to claims 25 and 29-33 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

CONCLUSION

Claims 25 and 29-33 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Katherine A. Hamer". The signature is fluid and cursive, with the first name "Katherine" written in a larger, more prominent script than the last name "Hamer".

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